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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/760,545   | 01/21/2004  | Tomas Jonsson        | 2380-784            | 8623             |
| 23117  | 7590        | 09/11/2006           | EXAMINER            |                  |
| NIXON & VANDERHYE, PC<br>901 NORTH GLEBE ROAD, 11TH FLOOR<br>ARLINGTON, VA 22203 |             |                      | AU, GARY            |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2617                |                  |

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |  |                     |  |
|------------------------------|------------------------|--|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> |  | <b>Applicant(s)</b> |  |
|                              | 10/760,545             |  | JONSSON ET AL.      |  |
|                              | <b>Examiner</b>        |  | <b>Art Unit</b>     |  |
|                              | Gary Au                |  | 2617                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 5-9, 13, 14, 21 and 24-26 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,879,834 (Virtanen).

Considering claims 1 and 21, Virtanen teaches a method and apparatus related to a communication between a radio network and a wireless subscriber unit over a radio link (figure 1, col. 3 lines 46-66), comprising: determining a quality of service profile for the communication with the subscriber unit over the radio link that includes one or more desired QoS parameters with at least a first desired QoS parameter (col. 5 lines 14-55); determining for the communication with subscriber unit a first actual QoS parameter (col. 5 lines 29-55); and determining whether the first desired QoS parameter and the first actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 lines 29-55); and selecting or adjusting a modulation and coding scheme for

transmitting information over the radio link based on whether the first desired QoS parameter and the first actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 line 56 – col. 6 line 6).

Considering claims 5 and 24, Virtanen teaches determining the MCS to provide a greatest throughput over the radio link shared by multiple wireless subscriber units where the first actual QoS parameter and the first desired QoS parameter are within an acceptable range or an acceptable relationship (col. 4 line 47 – col. 5 line 13 and col. 5 line 56 – col. 6 line 6).

Considering claim 6, Virtanen inherently teaches detecting a change in the QoS profile, and repeating the steps in claim 1 (col. 1 line 37 – col. 2 line 5, col. 4 lines 47-67 and col. 5 lines 14-28, wherein Virtanen discloses that the mobile has to resend request for a lower QoS profile and the system has to be able to detecting the change).

Considering claim 7, Virtanen teaches detecting a first request for retransmission of a data unit, and determining a second MCS for retransmitting the data unit over the radio communications link (col. 1 line 37 – col. 2 line 5, col. 4 lines 47-67 and col. 5 lines 14-28).

Considering claim 8, Virtanen teaches detecting a second request for retransmission of the data unit, and determining a third MCS for retransmitting the data

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unit over the radio communications link (see claim 7 where it can be done for a second request and third MCS).

Considering claim 9, Virtanen teaches adapting the MCS to ensure that an error rate for communications over the radio communications link does not cause the actual delay to delay to exceed a threshold value (col. 5 lines 14-28).

Considering claims 13 and 25, Virtanen teaches the MCS is selected or adjusted for transmitting information over the radio link from the radio network to the wireless subscriber unit (col. 5 line 56 – col. 6 line 6).

Considering claims 14 and 26, Virtanen teaches the MCS is selected or adjusted for transmitting information over the radio link from the wireless subscriber unit to the radio network (col. 5 lines 29-55).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4, 15-20, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,879,834 (Virtanen) as applied to claims 1 and 21 above, and further in view of US Patent No. 6,690,919 (Weber).

As to claims 2 and 22, Virtanen teaches the method above but fails to disclose combining the first and second desired QoS parameters into a combined desired QoS parameter, and combining the first and second actual QoS parameters into a combined actual QoS parameter, wherein the selecting or adjusting selects or adjusts the MCS based on whether the combined desired QoS parameter and the first actual QoS parameter are within an acceptable range or an acceptable relationship.

In an analogous art, Weber teaches combining the first and second desired QoS parameters into a combined desired QoS parameter (col. 5 lines 15-31), and combining the first and second actual QoS parameters into a combined actual QoS parameter (col. 5 lines 15-31), wherein the selecting or adjusting selects or adjusts the MCS based on whether the combined desired QoS parameter and the first actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 lines 15-31).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Virtanen's system to include combining the first and second desired QoS parameters into a combined desired QoS parameter, and combining the first and second actual QoS parameters into a combined actual QoS parameter, wherein the selecting or adjusting selects or adjusts the MCS based on whether the combined desired QoS parameter and the first actual QoS parameter are

within an acceptable range or an acceptable relationship, as taught by Weber, for the advantage of providing good quality of service (col. 2 lines 20-58).

As to claim 3, Virtanen further teaches selecting or adjusting the modulation and coding scheme for transmitting information over the radio communications link based on whether the first desired QoS parameter and the first actual QoS parameter are within an acceptable range or an acceptable relationship and whether the second desired QoS parameter and the second actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 line 56 – col. 6 line 6).

As to claims 4 and 23, Virtanen further teaches the first QoS parameter is bit rate and the second QoS parameter is delay (col. 5 lines 14-28).

As to claim 15, Virtanen teaches a method related to a communication between a radio network and a wireless subscriber unit over a radio link (figure 1, col. 3 lines 46-66), comprising: determining a quality of service profile for the communication with the subscriber unit over the radio link that includes a first desired QoS parameter and a second desired QoS parameter (col. 5 lines 14-55); determining for the communication with the subscriber unit a first actual QoS parameter and a second actual QoS parameter (col. 5 lines 29-55); and determining whether the desired QoS parameter and the actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 line 56 – col. 6 line 6); and selecting or adjusting a modulation and coding

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scheme for transmitting information over the radio link based on whether the combined desired QoS parameter and the combined actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 line 56 – col. 6 line 6). However, Virtanen fails to disclose a combined desired QoS parameter and combined desired QoS parameter.

In an analogous art, Weber teaches determining a combined desired QoS parameter using the first desired QoS parameter and the second desired QoS parameter and determining a combined actual QoS parameter using the first actual QoS parameter and the second actual QoS parameter (col. 5 lines 15-31).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Virtanen's system to include a combined desired QoS parameter and combined desired QoS parameter, as taught by Weber, for the advantage of providing good quality of service (col. 2 lines 20-58).

As to claim 16, see the rejection of claim 4.

As to claim 17, see the rejection of claim 5.

As to claim 18, see the rejection of claim 6.

As to claim 19, see the rejection of claim 13.



As to claim 20, see the rejection of claim 14.

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,879,834 (Virtanen) as applied to claims 9 above, and further in view of US Patent No. 6,374,112 Widegren et al. (Widegren).

As to claim 10, Virtanen teaches the method above but fails to disclose a delay on a radio link control protocol level.

In an analogous art, Widegren teaches a delay on a radio link control protocol level (col. 7 lines 18-40).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Virtanen's system to include a delay on a radio link control protocol level, as taught by Widegren, for the advantage of better allocating the radio access (col. 3 lines 33-43).

As to claim 11, Virtanen teaches the method above but fails to disclose a delay on a logical link layer control protocol level (col. 5 line 63 – col. 6 line 21).

7. Claims 12, 27, 31, 32, 42-44 and 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,879,834 (Virtanen) as applied to claim 9 above, and further in view of US Patent No. 6,529,730 Komaili et al. (Komaili).

As to claim 12, Virtanen teaches the method above but fails to disclose the MCS is adapted incrementally.

In an analogous art, Komaili teaches the MCS is adapted incrementally (table 1, col. 10 lines 17-26).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Virtanen's system to include the MCS is adapted incrementally, as taught by Komaili, for the advantage of consistent and reliable call handling (col. 2 lines 34-49).

As to claim 27, Virtanen teaches a mobile station for use in a communication between a radio network and the mobile station over a radio link, comprising: inherently a transceiver for transmitting the modulated information (col. 5 lines 14-28, where a mobile station has to have a transceiver for transmissions); a controller (col. 3 lines 46-66, where mobile station has to have a controller) for determining for the communication a first desired QoS parameter and a second desired QoS parameter (col. 5 lines 14-55); and a QoS detector (col. 5 lines 14-28, where a detector has to be present to detect the QoS parameter) for determining for the communication a first actual QoS parameter and a second actual QoS parameter (col. 5 lines 14-55), wherein the controller is configured to: determine whether the first desired QoS parameter and the first actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 lines 29-55); determine whether the second desired QoS parameter and the second actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 lines 29-55); and select or adjust a modulation scheme implemented in the modulator or a coding scheme implemented in the coder for transmitting information over the radio link

based on whether the first desired QoS parameter and the first actual QoS parameter are within an acceptable range or an acceptable relationship or whether the second desired QoS parameter and the second actual QoS parameter are within an acceptable range or acceptable relationship (col. 5 line 56 – col. 6 line 6). However, Virtanen does not specifically teach a coder for coding information to be transmitted and a modulator for modulating the coded information.

In an analogous art, Komaili teaches a coder for coding information to be transmitted (vocoder 206, 208, or 210 – figure 1, col. 6 lines 33-44) and a modulator for modulating the coded information (modulator 220 – figure 1, col. 6 lines 45-57).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Virtanen's system to include a coder for coding information to be transmitted and a modulator for modulating the coded information, as taught by Komaili, for advantage of consistent and reliable call handling (col. 2 lines 34-49).

As to claims 31, 42 and 43, Virtanen teaches radio network apparatus for use in a communication between a radio network and the mobile station over a radio link, comprising: inherently a transceiver for transmitting the modulated information (col. 5 lines 14-28, where a mobile station has to have a transceiver for transmissions); a first controller (col. 3 lines 46-66, where mobile station has to have a controller) for determining for the communication a first desired QoS parameter and a second desired QoS parameter (col. 5 lines 29-55), determining whether the first desired QoS

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parameter and the first actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 lines 14-55), and determining whether the second desired QoS parameter and the second actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 lines 14-55); and a second controller (col. 3 lines 46-66, where mobile station has to have a controller) for selecting or adjusting a modulation scheme implemented in the modulator or a coding scheme implemented in the coder for transmitting information over the radio link based on whether the first desired QoS parameter and the first actual QoS parameter are within an acceptable range or an acceptable relationship or whether the second desired QoS parameter and the second actual QoS parameter are within an acceptable range or an acceptable relationship (col. 5 line 56 – col. 6 line 6). However, Virtanen does not specifically teach a coder for coding information to be transmitted and a modulator for modulating the coded information.

In an analogous art, Komaili teaches a coder for coding information to be transmitted (vocoder 206, 208, or 210 – figure 1, col. 6 lines 33-44) and a modulator for modulating the coded information (modulator 220 – figure 1, col. 6 lines 45-57).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Virtanen's system to include a coder for coding information to be transmitted and a modulator for modulating the coded information, as taught by Komaili, for advantage of consistent and reliable call handling (col. 2 lines 34-49).

As to claim 32 and 44, see the rejection of claim 4.

As to claim 46, see the rejection of claim 5.

As to claim 47, 48 and 49, Virtanen teaches the coder, modulator, transceiver, quality detector, and second controller (col. 3 lines 46-66, where the components can be implemented in any of the equipment in the network).

8. Claims 28-30,33-41 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,879,834 (Virtanen) and US Patent No. 6,529,730 Komaili et al. (Komaili) as applied to claims 27 and 31 above, and further in view of US Patent No. 6,690,919 (Weber).

As to claims 28, 33, 37, 45, see the rejection of claim 2.

As to claim 29 and 38, see the rejection of claim 4.

As to claims 30, 34, 39, see the rejection of claim 5.

As to claims 35 and 39, see the rejection of claim 13.

As to claims 36 and 40, see the rejection of claim 14.

As to claim 41, Virtanen teaches the radio network apparatus is implemented in a radio base station (col. 3 lines 46-66).

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 6,400,954 (Khan et al.) teaches a radio communication system supports high throughput rates over an air interface.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary Au whose telephone number is (571) 272-2822. The examiner can normally be reached on 8am-5pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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